

Developing a System of Indicators to Track Climate Change Impacts, Vulnerabilities, and Preparedness

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The goals for the NCA indicators are to:

- provide meaningful, authoritative climate-relevant measures about the status, rates, and trends of key physical, ecological, and societal variables and values;
- inform decisions on management, research, and education at regional to national scales;
- identify climate-related conditions and impacts to help develop effective mitigation and adaptation measures; and
- provide analytical tools by which user communities can derive their own indicators for particular purposes.

Design Criteria (to the extent possible):

- Multiple audiences for indicators
- Current and leading indicators
- Scalable indicators
- Build on or augment existing agency efforts
- Scientifically defensible

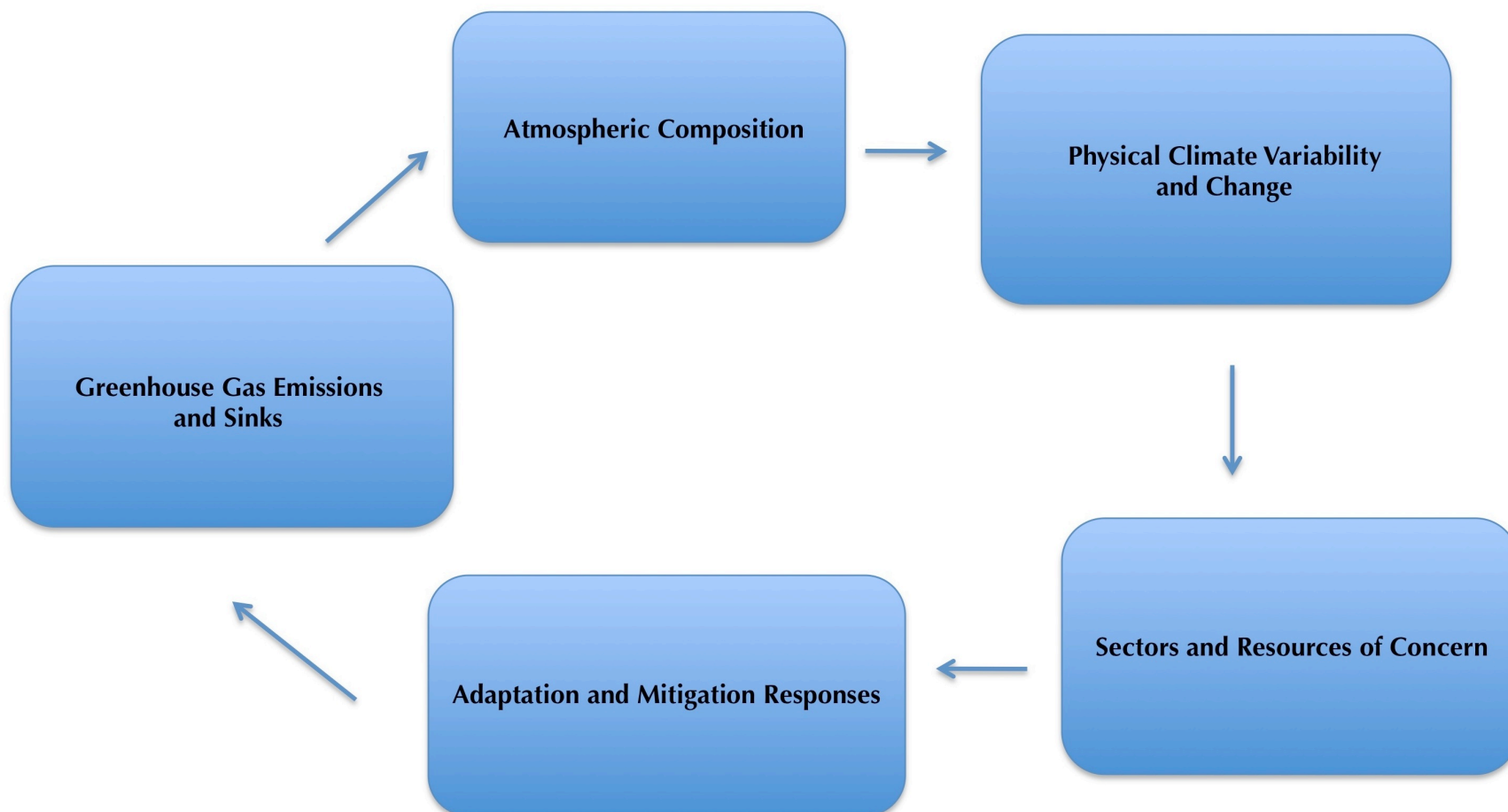
Process of Establishing Indicators:

- Start with the questions to be addressed by indicators
- Identify stakeholders in diverse institutions
- Engage stakeholders (producers and users) from development to implementation to evaluation
- Prototype indicators to establish priorities for implementation
- Evaluate the system

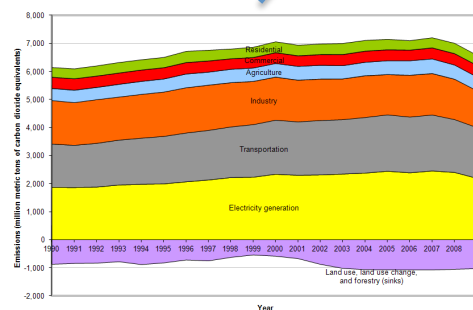
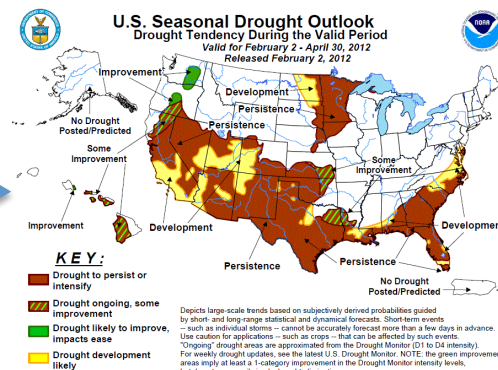
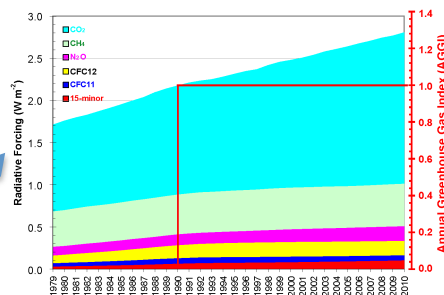
- How do we know that climate is changing and how is the climate projected to change in the future?
- What important climate impacts and opportunities are occurring or are predicted to occur in the future?
- How are we preparing for rapid change or extreme events related to climate?
- How are we adapting and mitigating over longer time frames?
- What are our fundamental vulnerabilities and resiliencies to climate variability and change?

Completed Indicators Milestones

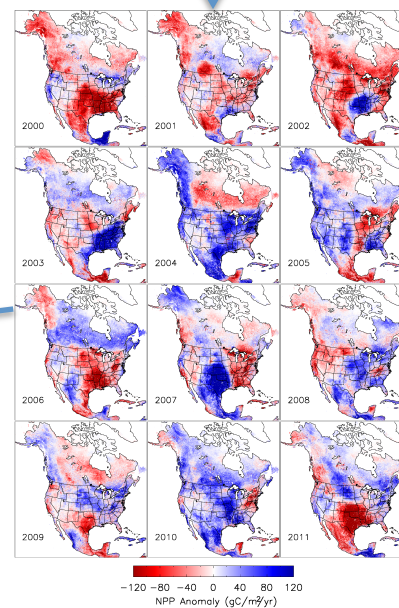
- 3 Indicator Workshops from 2010-2011 on Ecosystems, Physical, and Societal Indicators
- Formation of NCADAC Indicator Work Group (advisory board) in 2011
 - includes NCADAC members, agency experts, and academics
- Vision recommended by Indicator Work Group approved by NCADAC November 2011
- Submission of Indicator Technical Input Report for the 2013 National Climate Assessment Report (currently being developed into manuscript)
 - provides the theoretical basis for the system that builds off the recommendations of the 3 indicator workshops
 - highlights existing indicators that fit within the framework
- Development of an implementation plan, including organizational structure, deliverables, and timeline
- Funding from NOAA NCADC Technical Assessment Support Unit for a position to direct the effort
- Identification of physical, ecological, and societal team leads
- Secured (or finalizing) temporary technical and programmatic support for teams from several policy interns and AAAS fellows



Indicators Examples



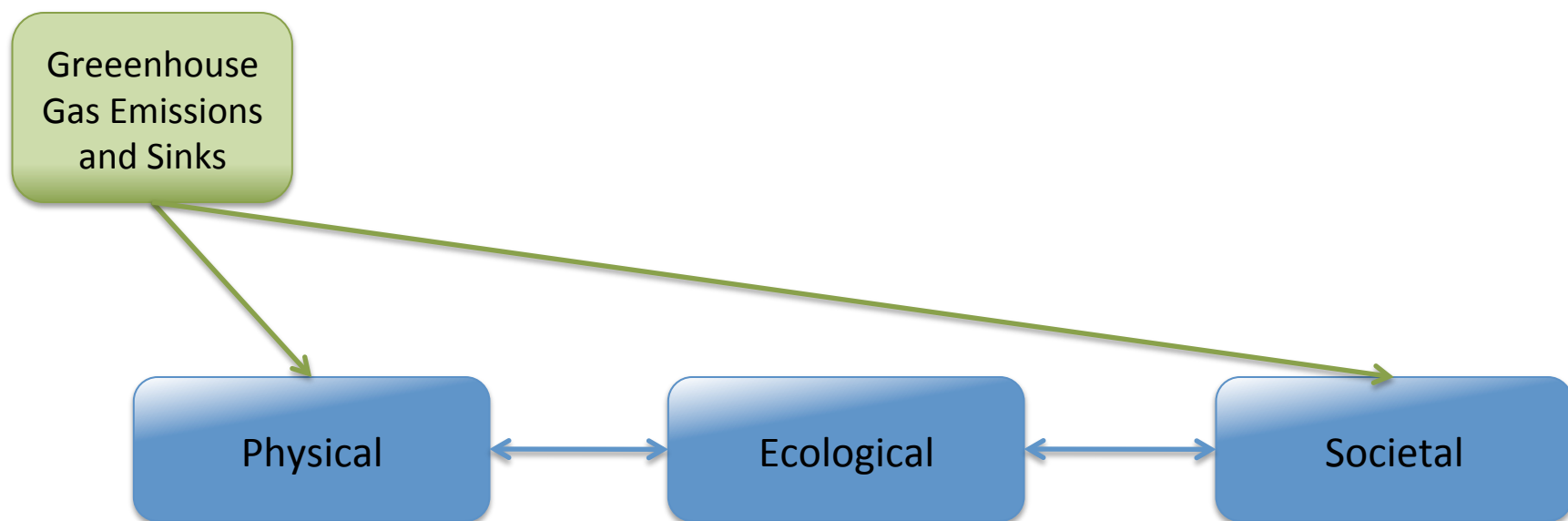
Adaptation and
Mitigation
Responses



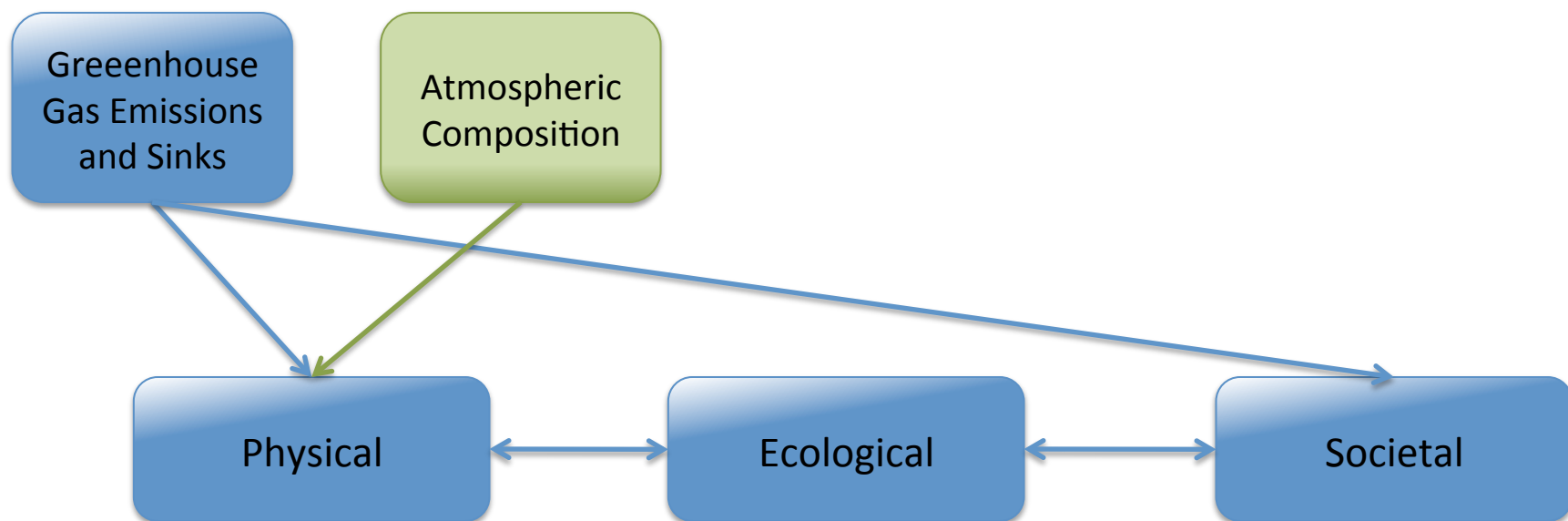
Indicators Framework to Organization



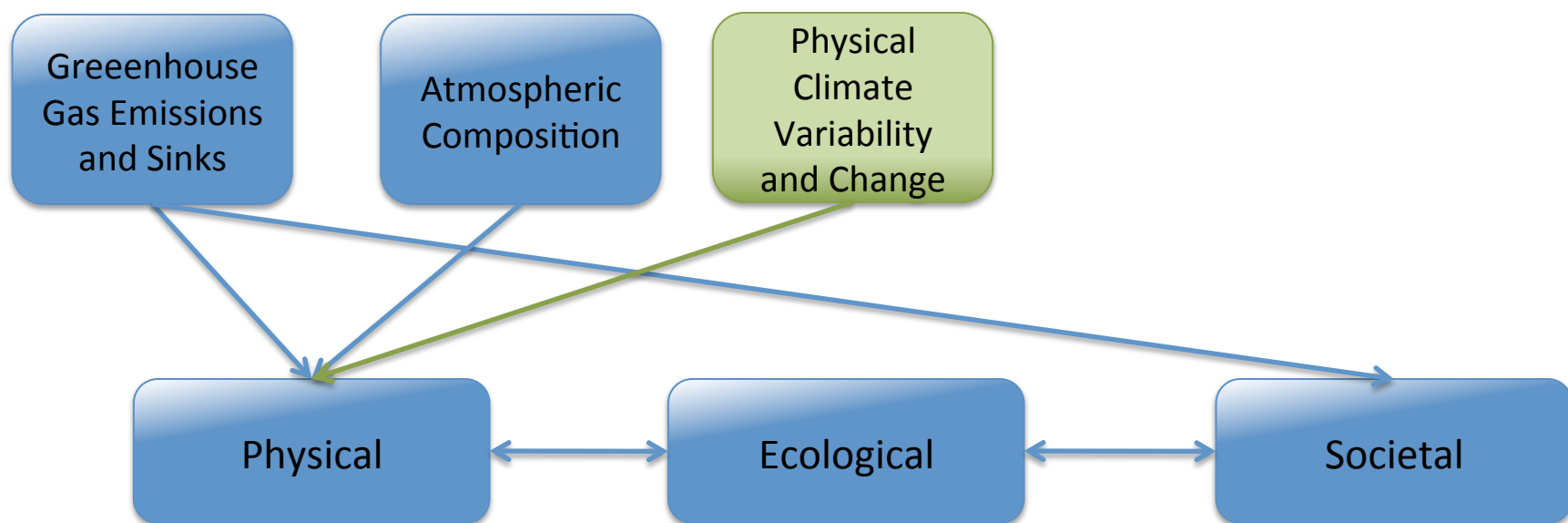
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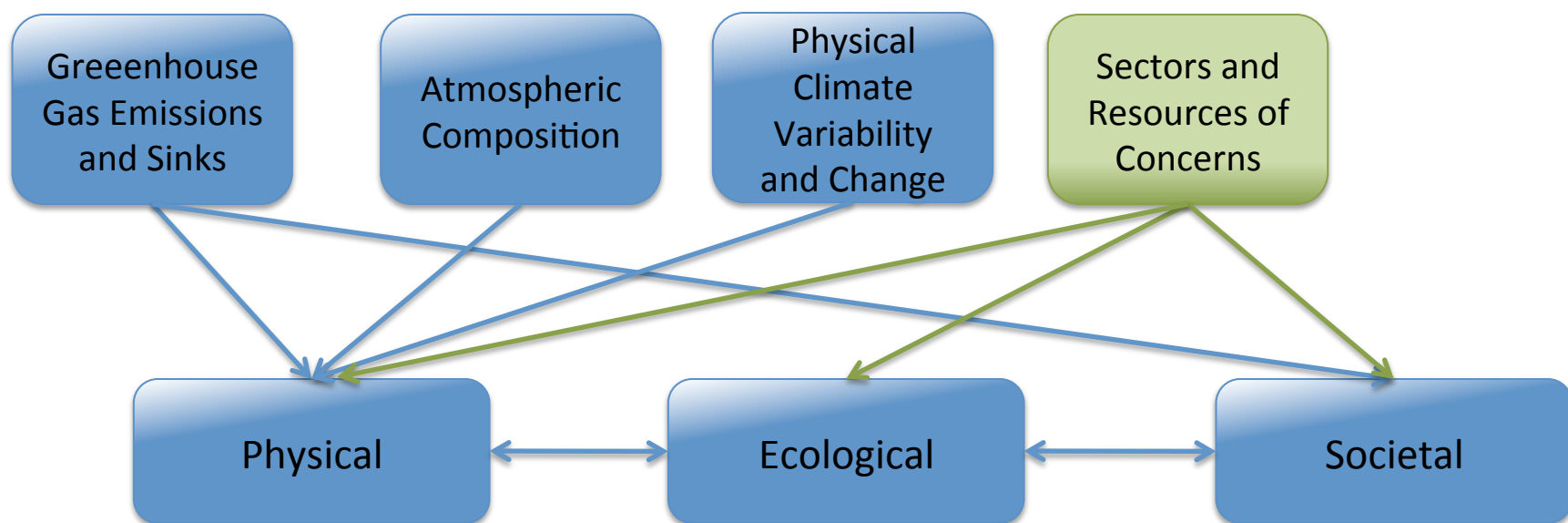
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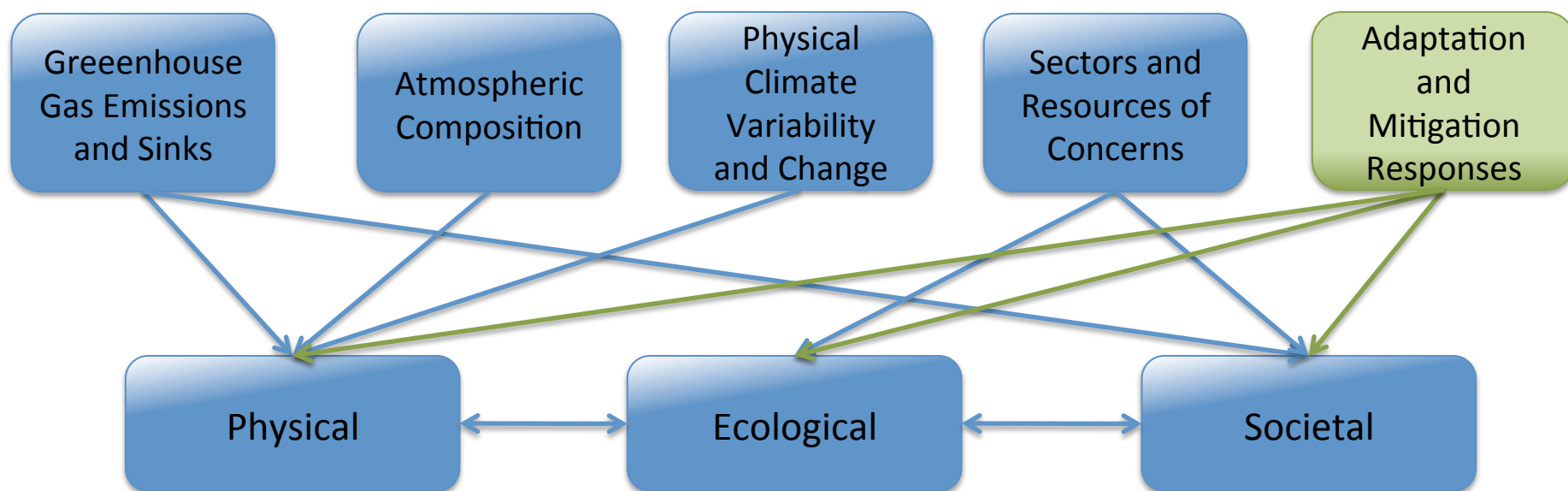
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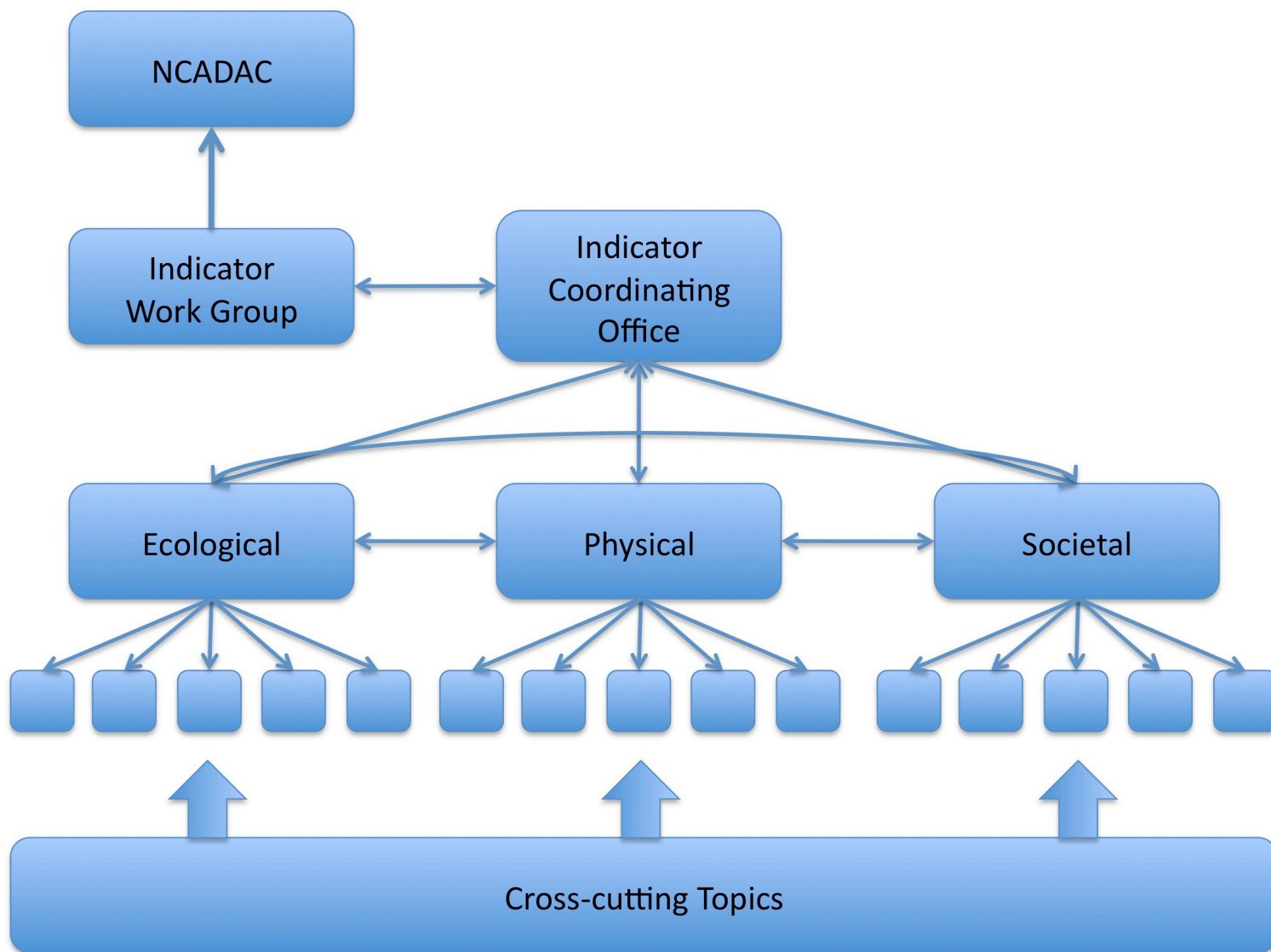
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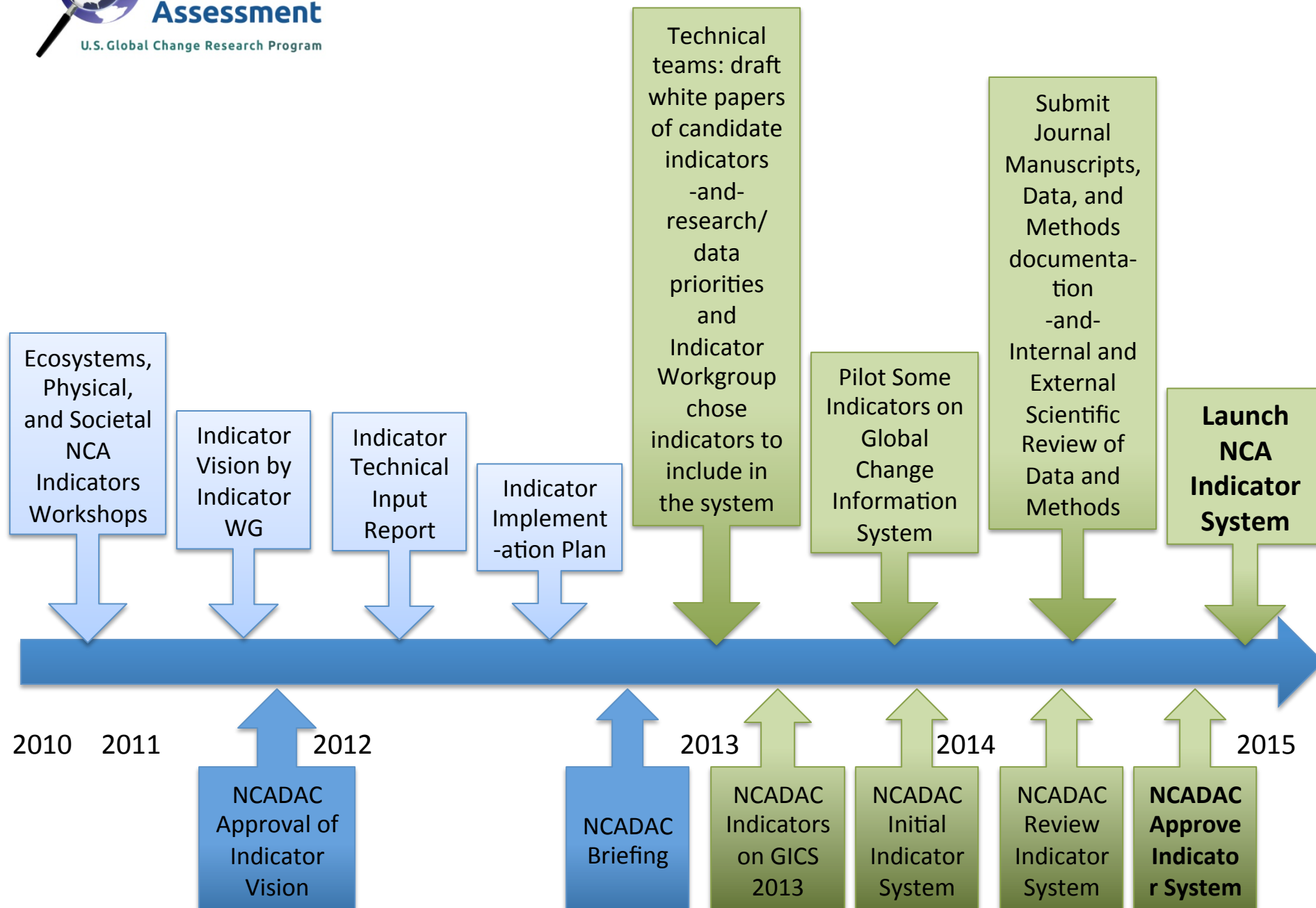


Indicators Organizational Structure



- Finalize Decision Criteria (November 2012)
- Identification of technical team members (November/December 2012)
- Development of Indicators Portal to facilitate collaboration between technical teams and Indicator Work Group (December 2012)
- Submit articles to *Climatic Change* and *Nature Climate Change* from the Indicators Technical Input Report (end 2012)
- Technical teams develop conceptual models (Winter 2013)
- Technical teams vet candidate indicators for Indicator WG (April 2013)
- Indicator WG recommends indicators for initial system (Summer 2013)
- NCADAC considers Indicator WG recommendations (Summer 2013)
- Documentation on each of the indicators (end 2013)
- Inclusion of indicators in GCIS release (end 2013)
- NCADAC, internal, and external review of the system – data and methods (2014)
- NCADAC approval of indicator system (early 2015)
- **Launch indicator system on GCIS (mid-2015)**
- Special Issue of journal (prospectus to *PNAS*) on the Indicator System (publish 2015 with release of indicator system)

Indicators Milestones



- Identify existing indicators that are relevant to the key messages of the 2013 NCA report
 - work with agencies and organizations to link to those existing indicators on the GCIS
- Provide a “public-friendly” summary of the developing NCA indicator system

Contribute to the NCA Indicators?

Indicators: If you have an indicator that should be considered as a candidate in the NCA Indicator System, please send a short summary description and the supporting information.

Experts: If you would like to be considered on a technical team to vet candidate indicators for the system, please send a short summary of your indicators expertise and your CV.

Policy Interns: If you are interested in a policy internship, please send short description of your interest and your CV.

Email: indicators@usgcrp.gov
<http://assessment.globalchange.gov>